

1 I claim:

2 1. A method of stimulating a peripheral nerve to treat pain emanating from the peripheral  
3 nerve, the method comprising the steps of:

4 placing a lead near a peripheral nerve that is causing pain; and

5 electrically stimulating the peripheral nerve with the lead to cause paresthesia of the  
6 painful area.  
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8 2. The method of claim 1 wherein the step of placing a lead includes the step of placing a  
9 lead across the peripheral nerve that is causing pain.

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11 3. The method of claim 2 wherein the step of step of placing a lead across the peripheral  
12 nerve that is causing pain includes the step of subcutaneously placing a lead across the  
13 peripheral nerve that is causing pain.

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15 4. The method of claim 3 wherein the step of subcutaneously placing a lead includes the  
16 step of subcutaneously placing a lead in the fascia superior to the peripheral nerve.

17  
18 5. The method of claim 4 wherein the step of subcutaneously placing a lead in the fascia  
19 superior to the peripheral nerve includes the step of subcutaneously placing a lead in the fascia  
20 superior to the peripheral nerve proximal to the level of detected pain.

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22 6. The method of claim 1 wherein the step of placing a lead includes the step of  
23 subcutaneously placing a lead near the peripheral nerve that is causing pain.

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2 7. The method of claim 6 wherein the step of subcutaneously placing a lead includes the  
3 step of subcutaneously placing a lead in the fascia superior to the peripheral nerve.

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5 8. The method of claim 7 wherein the step of subcutaneously placing a lead in the fascia  
6 superior to the peripheral nerve includes the step of subcutaneously placing a lead in the fascia  
7 superior to the peripheral nerve proximal to the level of detected pain.

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9 ~~6~~ 9. The method of claim 1 further comprising the step of initially palpating the area of pain  
10 to identify the specific peripheral nerve that is causing the pain.

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12 ~~10~~ 10. The method of claim 1 wherein the step of placing a lead includes the steps of:  
13 providing an introducer needle;  
14 subcutaneously placing the introducer needle in the fascia superior to the peripheral  
15 nerve that is causing pain.

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17 ~~11~~ 11. The method of claim ~~10~~ <sup>7</sup> wherein the step of placing a lead further includes the step of  
18 passing, when the introducer needle is in position above the peripheral nerve, the lead through  
19 the introducer needle until the lead is also in position above the peripheral nerve causing the  
20 pain.

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1 ~~12.~~ The method of claim ~~11~~ further comprising the step of removing, after passing the lead  
2 through the introducer needle until the lead is also in position above the peripheral nerve  
3 causing the pain, the introducer needle leaving the lead in place above the peripheral nerve.

4

5 13. The method of claim 10 wherein the step of subcutaneously placing the introducer  
6 needle in the fascia superior to the peripheral nerve that is causing pain.

7 includes the step of curving the introducer needle to conform to the contour of the patient's  
8 body superior to the peripheral nerve.

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10 ~~14.~~ <sup>11</sup> The method of claim 1 wherein the step of placing a lead includes the step of placing  
11 dual leads.

12 <sup>12</sup>  
13 ~~15.~~ <sup>11</sup> The method of claim ~~14~~ further comprising the step of connecting the lead to a  
14 screening device.

15 <sup>13</sup>  
16 ~~16.~~ <sup>12</sup> The method of claim ~~15~~ further comprising the step of performing test electrical  
17 stimulation with the lead.

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19 17. The method of claim 16 wherein the step of performing test electrical stimulation with  
20 the lead includes the step of electrically stimulating the patient by the lead and screener device  
21 to evaluate the lead position.

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1 18. The method of claim 16 wherein the step of performing test electrical stimulation with  
2 the lead includes the step of electrically stimulating the patient by the lead and screener device  
3 to develop optimal stimulation parameters.

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5 <sup>16</sup>~~19~~. The method of claim <sup>13</sup>~~16~~ further comprising the step of receiving verbal feedback from  
6 the patient regarding paresthesia coverage of the effects of the electrical stimulation by the lead.

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8 <sup>17</sup>~~20~~. The method of claim <sup>13</sup>~~16~~ wherein the step of performing test electrical stimulation with  
9 the lead includes the step of electrically stimulating the patient with an electrical signal having  
10 an amplitude between about 0.5 to about 4.0 volts.

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12 <sup>18</sup>~~21~~. The method of claim <sup>13</sup>~~16~~ wherein the step of performing test electrical stimulation with  
13 the lead includes the step of electrically stimulating the patient with an electrical signal having a  
14 rate between about 50 Hz. to about 400 Hz.

15  
16 <sup>19</sup>~~22~~. The method of claim <sup>13</sup>~~16~~ wherein the step of electrically stimulating the patient with an  
17 electrical signal having a rate between about 50 Hz. to about 400 Hz. includes the step of  
18 electrically stimulating the patient with an electrical signal having a pulse width between about  
19 90 μsec to about 200 μsec. ✓

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21 <sup>20</sup>~~23~~. The method of claim 1 further comprising the steps of:  
22 implanting an implantable pulse generator; and  
23 electrically connecting the implantable pulse generator to the lead.

21  
~~24.~~

The method of claim 1 further comprising the steps of:  
implanting a RF system receiver; and  
electrically connecting the RF system receiver to the lead.

22  
~~25.~~

The method of claim 1 wherein the step of placing a lead near a peripheral nerve that is causing pain includes the step of placing a screening lead near a peripheral nerve that is causing pain; and

wherein the step of electrically stimulating the peripheral nerve with the lead to cause paresthesia of the painful area includes the step of electrically stimulating the peripheral nerve with the screening lead; and

further comprising the steps of  
placing a permanent lead near the peripheral nerve that is causing pain; and  
electrically stimulating the peripheral nerve with the permanent lead to cause paresthesia of the painful area.

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~~26.~~

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The method of claim ~~25~~ wherein the step of placing a permanent lead includes the step of placing a permanent lead across the peripheral nerve that is causing pain.

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~~27.~~

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~~26~~

The method of claim ~~26~~ wherein the step of placing a permanent lead across the peripheral nerve that is causing pain includes the step of subcutaneously placing a permanent lead across the peripheral nerve that is causing pain.

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The method of claim 25 wherein the step of placing a permanent lead includes the step of subcutaneously placing a permanent lead near the peripheral nerve that is causing pain.

29. A method of stimulating an occipital nerve to treat occipital neuralgia comprising the steps of:

placing a lead near an occipital nerve that is causing pain;  
electrically stimulating the occipital nerve with the lead to cause paresthesia of the painful area.

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The method of claim 27 wherein the step of placing a lead includes the step of placing a lead across the occipital nerve that is causing pain.

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The method of claim 27 wherein the step of placing a lead across the occipital nerve that is causing pain includes the step of subcutaneously placing a lead across the occipital nerve that is causing pain.

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The method of claim 26 wherein the step of placing a lead includes the step of subcutaneously placing a lead near the occipital nerve that is causing pain.

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The method of claim 26 wherein the step of placing a lead near an occipital nerve that is causing pain includes the step of subcutaneously placing a lead at the level of C1 transversely across the base of the occipital nerve trunk and wherein the step of electrically stimulating the

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1 occipital nerve with the lead to cause paresthesia of the painful area includes the step of  
2 electrically stimulating the occipital nerve trunk.

3  
4 ~~34.~~ A method of stimulating a peripheral nerve to treat pain emanating from the peripheral  
5 nerve, the peripheral nerve chosen from a group consisting of a supraorbital nerve, a clunial  
6 nerve, an iliolinguinal nerve, a median nerve, an ulnar nerve and a sciatic nerve, the method  
7 comprising the steps of:  
8 placing a lead near a peripheral nerve that is causing pain; and  
9 electrically stimulating the peripheral nerve with the lead to cause paresthesia of the  
10 painful area.

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12 ~~35.~~<sup>32</sup> The method of claim ~~34~~<sup>31</sup> wherein the step of placing a lead includes the step of placing a  
13 lead across the peripheral nerve that is causing pain.

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15 ~~36.~~<sup>33</sup> The method of claim ~~35~~<sup>32</sup> wherein the step of step of placing a lead across the peripheral  
16 nerve that is causing pain includes the step of subcutaneously placing a lead across the  
17 peripheral nerve that is causing pain.

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19 ~~37.~~<sup>34</sup> The method of claim ~~34~~<sup>31</sup> wherein the step of placing a lead includes the step of  
20 subcutaneously placing a lead near the peripheral nerve that is causing pain.

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~~38~~. The method of claim <sup>31</sup>~~34~~ wherein the step of placing a lead near a peripheral nerve that  
2 is causing pain includes the step of placing a screening lead near a peripheral nerve that is  
3 causing pain; and

4 wherein the step of electrically stimulating the peripheral nerve with the lead to  
5 cause paresthesia of the painful area includes the step of electrically stimulating the  
6 peripheral nerve with the screening lead to cause paresthesia of the painful area.

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8 <sup>36</sup>  
~~39~~. The method of claim <sup>35</sup>~~38~~ further comprising the steps of:  
9 placing a permanent lead near the peripheral nerve that is causing pain; and  
10 electrically stimulating the peripheral nerve with the permanent lead to cause  
11 paresthesia of the painful area.

12  
13 40. A method of stimulating a peripheral nerve to treat neuralgias emanating from the  
14 peripheral nerve, the method comprising the steps of:  
15 placing a lead near a peripheral nerve that is causing pain; and  
16 electrically stimulating the peripheral nerve with the lead to cause paresthesia of the  
17 painful area.

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19 <sup>38</sup>  
~~41~~. The method of claim <sup>37</sup>~~40~~ wherein the step of placing a lead includes the step of placing a  
20 lead across the peripheral nerve that is causing pain.

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1 ~~42.~~ The method of claim ~~41~~ wherein the step of step of placing a lead across the peripheral  
2 nerve that is causing pain includes the step of subcutaneously placing a lead across the  
3 peripheral nerve that is causing pain.

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5 ~~43.~~ The method of claim ~~40~~ wherein the step of placing a lead includes the step of  
6 subcutaneously placing a lead near the peripheral nerve that is causing pain.

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8 ~~44.~~ The method of claim ~~40~~ wherein the step of placing a lead near a peripheral nerve that  
9 is causing pain includes the step of placing a screening lead near a peripheral nerve that is  
10 causing pain; and

11 wherein the step of electrically stimulating the peripheral nerve with the lead to  
12 cause paresthesia of the painful area includes the step of electrically stimulating the  
13 peripheral nerve with the screening lead to cause paresthesia of the painful area.

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15 ~~45.~~ The method of claim ~~44~~ further comprising the steps of:  
16 placing a permanent lead near the peripheral nerve that is causing pain; and  
17 electrically stimulating the peripheral nerve with the permanent lead to cause  
18 paresthesia of the painful area.

19  
20 46. A method of stimulating a peripheral nerve to treat neuralgias emanating from the  
21 peripheral nerve, the neuralgias chosen from a group consisting of post herpetic neuralgia,  
22 chronic deafferentation pain, chronic peripheral nerve pain, post craniotomy pain, incisional  
23 pain, clunial nerve pain, post herniorrhaphy pain, localized low back or other spine pain,

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1 incisional neuroma pain, stump neuroma pain, incisional scar pain, deafferentation pain, chronic  
2 peripheral nerve pain, sciatic neuralgia, medial neuralgia and ulnar neuralgia, the method  
3 comprising the steps of:  
4 placing a lead near a peripheral nerve that is causing pain; and  
5 electrically stimulating the peripheral nerve with the lead to cause paresthesia of the  
6 painful area.

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8 <sup>44</sup>~~47~~ The method of claim <sup>43</sup>~~46~~ wherein the step of placing a lead includes the step of placing a  
9 lead across the peripheral nerve that is causing pain.

10  
11 <sup>45</sup>~~48~~ The method of claim <sup>44</sup>~~47~~ wherein the step of step of placing a lead across the peripheral  
12 nerve that is causing pain includes the step of subcutaneously placing a lead across the  
13 peripheral nerve that is causing pain.

14  
15 <sup>46</sup>~~49~~ The method of claim <sup>43</sup>~~46~~ wherein the step of placing a lead includes the step of  
16 subcutaneously placing a lead near the peripheral nerve that is causing pain.

17  
18 <sup>47</sup>~~50~~ The method of claim <sup>43</sup>~~46~~ wherein the step of placing a lead near a peripheral nerve that  
19 is causing pain includes the step of placing a screening lead near a peripheral nerve that is  
20 causing pain; and

21 wherein the step of electrically stimulating the peripheral nerve with the lead to  
22 cause paresthesia of the painful area includes the step of electrically stimulating the  
23 peripheral nerve with the screening lead to cause paresthesia of the painful area.

